Now We Have Equality

"Now We Have Equality": A Feminist Political Ecology Analysis of Carbon Markets in Oaxaca, Mexico

Introduction

Through carbon markets mechanisms, wealthy countries can offset their carbon emissions by transferring the burden of reducing green-house gas emissions (GHG) to the Global South, usually through monetary incentives that fund carbon sequestration and GHG reduction projects such as reforestation and wind farms. Formal negotiations to reduce increasing levels of carbon dioxide (CO_2) began at the 1992 UN Framework Convention on Climate Change (UNFCCC) where GHG emissions became an international issue. The 1997 Kyoto Protocol compelled industrialized countries to reduce their emissions back to 1990 levels, partially via the Clean Development Mechanism (CDM), a formal compliance and regulatory approach that has strict international metrics, rules, and guidelines. About the same time, firms and NGOs created accompanying voluntary markets whose most attractive feature was their non-binding quality (Bumpus and Liverman 2008).

Advocates of carbon markets contend that markets allocate scarce conservation resources more efficiently than states, suggesting that reducing emissions through economic incentives provide greater benefits to the atmosphere and to sustainable development, especially when carbon projects occur in the developing world (Nelson and De Jong 2003). Carbon projects have become preferred approaches to mitigating (GHG) emissions for wealthy, industrialized countries because they encourage penetration of market mechanisms into environmental governance, and do not require

the kinds of fundamental social and economic changes that are implied by strategies for keeping fossil fuels in the ground (Goals *et al.* 2015; Nelson and De Jong 2003; Yamin 2005). Studies of the CDM have found that these are not benefitting the world's poorest communities since carbon mitigation usually takes priority over sustainable development (Boyd 2009). Stakeholders usually select the cheapest and most efficient ways of reducing greenhouse gas emissions through large-scale projects in the power and manufacturing sectors or forestry sink projects. As such, most of the finance capital goes to a few of the more industrialized countries that have the means to build and sustain these large-scale projects (Skinner 2011). Communities interested in accessing the CDM have encountered a complicated processes of applying for and obtaining permission to access the international carbon market (Lambrou and Piana 2006). Voluntary markets, on the other hand, have been shown to be more successful than the CDM at promoting sustainable development since they are interested in smaller-scale projects such as those in micro hydro and biomass energy, community reforestation or agroforestry, where communities are encouraged to apply (Boyd 2002; Boyd et al. 2009; Boyd 2009; Gay-Antaki 2013; Lovell and Liverman 2010).

Most of the carbon literature in Mexico has focused on forests, revealing that commodification of forest carbon maintains exploitative labor relations while continuing environmental and social degradation (Corbera and Brown 2010; Klooster and Masera 2000; Osborne 2011). While gender is mentioned in a few of these (Boyd 2002; Corbera *et al.* 2007), it is not by any means their primary focus. Meanwhile, the few studies of wind carbon in Mexico find that these projects create exploitative North/South relations (Howe 2011; Pasqualetti 2011), while paying no attention to gender.

Even though gender equality is a cross-cutting theme in sustainable development discourse − and the CDM encourages developing countries to incorporate 'sustainability' into their mitigation priorities − a gender perspective within carbon markets policies and practices is strikingly absent (Hemmati and Röhr 2009; MacGregor 2010; Skutsch 2002). While women might be involved in some of the carbon projects as employees, there is no evidence of gendered benefits to be gained from them (Boyd 2002; Boyd *et al.* 2009; Wamukonya and Skutsch 2009). Gender is important to consider within carbon markets since such markets rely on land ownership, access, and property, all of which favor men in much of the Global South (Denton 2002a; 2004). The sizable literature on gender and sustainable development suggests that development projects that do not consider gender marginalize women´s access to land and resources, excluding them from formal decision making (Boyd 2002; Resurreccion and Elmhirst 2008), or exploit women's social reproductive role to subsidize these projects (Nagar *et al.* 2002).

This article seeks to fill a lacuna in the gendered experiences of carbon markets through the exploration of two case studies in Oaxaca, Mexico. By providing insight into the gender relations within these projects, I will examine their broader community dynamics, particularly as they affect women. The question of who controls and determines rights over resources and environmental quality is fundamental to a feminist political ecological (FPE) approach. FPE uses gender as a critical variable to explore power relations that shape access and control over resources (Rocheleau, Thomas-Slayter, & Wangari 1996) and underscores the gendered nature of carbon markets and highlights differential opportunities to access benefits and reduce negative impacts that carbon projects might have.

In what follows, using FPE as an analytical lens, I review geographical research on Gender, Development and Environment to contextualize the significance of a gendered perspective within carbon markets. I argue for the importance of a gender perspective when assessing carbon markets and describe the value of using FPE as an analytical lens. After describing my methods, I provide a brief history of gender and land rights in before presenting two case studies – a forest carbon project and a wind carbon project – as windows onto the ways in which women can access benefits and reduce impacts of carbon projects. I conclude with recommendations for incorporating more completely gendered perspectives into future development efforts.

Carbon Markets and Gender in Oaxaca through a Feminist Political Ecology (FPE) Lens

Although there are no studies that focus on the gender dynamics of carbon markets, the comprehensive literature on gender and environment through an FPE lens serves as a useful hermeneutic to study the impact of development projects on gender dynamics. Feminist Political Ecologists have found that much of the gender and environment literature has overwhelmingly equated gender to women through three main formulations: women as victims, women as the problem, or women as saviors (Arora-Jonsson 2011; Buechler and Hanson 2015; MacGregor 2010; Skinner 2011). Much of the gender and environment literature has focused on women in the developing world, mostly in rural areas where women are usually assigned reproductive social roles, explaining why they are responsible for the collection of forest products and food for daily household subsistence; and how they will have to spend more time seeking alternate and increasingly scarce sources of food, fuel, and water in the face of climate change and environmental degradation (Cannon 2002; Goldsworthy 2010). Literature connecting environmental degradation to population

growth has positioned women as the main culprit of climatic changes, undermining longstanding advocacy work for women's human and reproductive rights (Terry 2009). To counter the woman-as-victim narrative, Feminist Political Ecologists have stressed how women's social positioning has made them expertly aware of rising prices of consumables, electricity and water, as well developing adaptive strategies in the face of climate changes (Bee 2013; Glazebrook 2011).

The portrayal of women as the main victims of climate change and environmental degradation, coupled with the portrayal of their expert, differentiated, and grounded environmental knowledge has positioned women as key players in development narratives (Dankelman 2002; Denton 2002b; Nagar *et al.* 2002; Power *et al.* 2006). While development initiatives could disrupt oppressive gender roles by considering the above dynamics, they usually end up reifying essentialist notions about men and women where women carry out the brunt of unpaid environmental work because of their social reproductive roles and subsidizing development schemes that exacerbate social and gender injustices (Arora-Jonsson 2011; MacGregor 2010; Resurreccion and Elmhirst 2008).

Feminist Political Ecologists have been critical of the mainstream use of gender in development work, and underscore that gender relations form part of wider relations and webs of power that impose rules and laws over the use of environmental commons. These scholars seek to destabilize gender as a central analytical category, and emphasize how gender is constituted through other axes of power and difference such as race, sexuality, class and place, while stressing that practices of development are intricately linked to colonial and imperial practices (Mollett and Faria 2013; Nightingale 2006). Under global capitalism poor women and men are marginalized through "…informal economies of production and caring that subsidize and constitute global capitalism"

(Nagar *et al.* 2002 p. 261). Feminist critiques of development in the global south underscore the importance of social reproduction for environmental sustainability by showing how development initiatives explicitly use women's unwaged labor to subsidize these based on the assumption that women are naturally suited for care-taking roles As a result, global processes have directly intensified the feminization of production, reproduction and community management (MacGregor 2010; Nagar *et al.* 2002)

FPE positions gender as a critical variable that impacts resource access and control, shaping global ecological practices that impact both men and women and their relationship to their environment (Rocheleau *et al.* 1996). As such, gender is a useful analytical category to study relations of power. This perspective allows for an understanding that women are disproportionately affected by all forms of environmental degradation because of their disproportionate roles as caretakers and providers, roles that leave women at a comparative disadvantage to men when it comes to accessing education, paid jobs, economic resources, and land (MacGregor 2010; Resurreccion and Elmhirst 2008). In climate and development contexts, FPE can provide women and other marginalized groups with new avenues of expression by denaturalizing disempowering gender distinctions, and showing the implications gender as a social construct rather than as an uncontestable biological fact (Mollett and Faria 2013; Nightingale 2006).

While understudied, gender issues play a major role in carbon projects because access to resources and political participation, as well as land ownership and property, are required to participate. Each of these processes is gendered. There are a handful of studies that mention gender in relation to carbon projects (Boyd 2002; Corbera *et al.* 2007; Galt 2010), and while gender was not the central theme for most of them, their insights are nonetheless valuable for understanding

gendered participation and exclusion within these projects. Decisions regarding the forest commons in Southern Mexico are usually made through a male-dominated community assembly and thus a carbon project's ability to incorporate a broad range of preferences regarding tree planting is severely limited due to the lack of recognition of women and small landholders as resource managers (Corbera *et al.* 2007). Carbon markets in Bolivia were meeting the 'practical gender needs' of women by providing livelihood alternatives such as home gardens, but the projects failed to meet 'strategic needs' – that is, needs whose fulfillment would enable women to improve their status in society (Boyd 2002). At the policy level, a scoping study conducted on gender sensitivity in voluntary carbon market standards found that only a surprisingly few mentioned gender (Galt 2010). The deficit of a gendered perspective in carbon projects disadvantages women and other marginalized groups. It also results in a progressive loss of knowledge concerning environmental commons.

Gender Relations and Land Tenure in Oaxaca

Oaxaca is the most biodiverse state in Mexico and has been ranked the third most economically marginalized state in Mexico (INEGI 2010). As such, Oaxaca has attracted the interest of the international community for its potential for mitigating the effects of climate change while promoting sustainable development. Since 1995, Mexico has legally recognized differentiated rights for indigenous communities in Oaxaca in the form of indigenous customary laws called *sistemas normativos internos* (Customs and Traditions) (Velásquez and Cristina 2004; Wise and Salazar 2003). In indigenous communities in Oaxaca, municipalities are elected through the process of Customs and Tradition rather than through electoral practices using secret ballots. Although Oaxacan women have always participated in the maintenance of their households and communities, they have not been allowed to formally participate in *sistemas normativos internos* (Danielson and

Eisenstadt 2009; Worthen 2015). Gender roles are shifting in some of these communities due to increased male migration from rural Oaxaca. Women are filling their husband's roles in collective decision-making; their political participation for community survival is vital as they fill in for the absent male so that he can conserve his status even from afar (Cohen et al. 2009; Heyward 2007; Maldonado and Artía 2004; Martínez-Iglesias 2015; Radel 2011; Radel and Schmook 2008; Velásquez and Cristina 2004; Worthen 2015). Women under these circumstances, even if present in assemblies, do not represent themselves; their silent presence legitimizes their absent male counterpart´s voice (Velásquez and Cristina 2004). Women in these positions carry the added burden of fulfilling their husbands' duties while still solely responsible for their homes, with no added benefit of increased decision making (Velásquez and Cristina 2004). This low level of female participation in agrarian and communal assemblies has created a rising wave of legislative efforts in Mexico to increase the participation of indigenous women in community decision making through liberal schemes. This might be perceived as a positive change for women in communities still run by *sistemas normativos internos*. However, for those who believe that they are oppressive for women, a study conducted by Worthen found that when women were given the option to formally participate in assemblies, they collectively decided to opt out of that option because of the added burden that fulfilling such a role would represent without any benefits (Worthen 2015). Liberal models of women as individual rights bearers fail to understand the complex ways gendered labor influences political participation in non-liberal contexts, a fact that women are well aware of (Worthen 2015).

Land tenure in many agrarian communities in southwest Mexico is also managed through communal systems. Liberal land reforms disrupt these systems and have important gender implications discussed next. Prior to the Mexican Revolution of 1910, the upper classes in Mexico owned most of the agricultural land. Following the Agrarian Reform of 1917 until 1991, more than

half of this land was redistributed to *ejidos*, which are territories defined by legal ownership of communal land, combined with individual use, and recognized via agrarian rights or communal land certificates. This transformation occurred sparingly in Oaxaca, with most of its territory remaining communal, which unlike *ejidos*, cannot be privatized or sold. However, since carbon projects such as the wind farms require ownership of *ejidos* for participation, it is important to understand this transformation in relation to women. The Agrarian Reform of 1917 did not apply to women. Amendments to the Mexican Constitution in 1927 under article 27 granted women land-use rights if they were single or had no male offspring. More revisions to the Federal Agrarian Reform Law in 1971 demanded equal treatment for men and women regarding land tenure (Hamilton 2002) but today, only 15 to 20 percent of *ejidos* belong to women (INEGI 2007). Women have been excluded from Mexico's land redistribution program, first legally, and later, as legal barriers were removed, culturally (Young 1998). In 1992, a new Agrarian Law also known as the counter-reform under President Carlos Salinas´ administration (1988-1994) allowed for the privatization of *ejidos*. The privatization of *ejidos* gave men legal rights to sell what had previously been a family resource for their own benefit. The effects of the new Agrarian Law in Mexico have been thoroughly discussed in the literature (Barnes 2009; Perramond 2008) but less so as it relates to women. Research has found that redefining land rights in terms of private property often disadvantages women in the developing world and has had little impact on women's ownership and land rights (Hamilton 2002; Nightingale 2006; Velásquez and Cristina 2004; Young 1998). For example, even though Oaxaca has the largest number of *comuneros* and *ejidatarios* (over half a million) in all of Mexico, out of these, only 27.1% are female (INEGI 2007). If the ability to privatize an *ejido* is a condition to participate in some carbon projects, we can see that most women will be automatically excluded since they only make up 27% of the total *ejidatario* population. In addition, because most of Oaxaca is under

communal land tenure, it comes as no surprise that carbon projects such as wind farms have encountered barriers since they require clear, individual, and defined land rights; fundamentally opposed to social concepts of labor, community and property.

Because political participation as well as access to resources, land and property ownership are all gendered in rural Oaxaca, development projects have significant gendered impacts (Young 1998). Thus, to understand the full implications of carbon projects that follow a liberal logic of individual rights and property in non-liberal contexts, it is essential to understand the gendered dynamics of these projects. This includes grasping the extent to which carbon forest projects disrupt or reproduce gender relations when it comes to accessing resources, education, property, paid jobs, and livelihood survival strategies: the central theme of this paper.

Methods

Data was collected over a four-month period in 2010. Because I was interested in both a wind and a forest carbon project in Oaxaca, data was collected in Tlahuitoltepec and La Venta and because I also needed to understand carbon markets more broadly, I conducted research in Oaxaca City and Mexico City. Throughout my research I conducted a series of informal, semi-structured and in-depth interviews, all conducted in Spanish in Mexico City (5) Oaxaca City (11) in Tlahuitoltepec (16) and in La Venta (12) which took place in offices, meeting rooms, homes, coffee shops and during field visits. In addition, over the course of my fieldwork, I engaged in participant observation, attended meetings, organized focus groups, visited health centers and wind farms, shadowed agrarian authorities, accompanied community members to their reforested plots or to observe their wind towers, conducted house visits, visited both headquarters for wind and forest carbon projects

and took careful field notes. I collected oral histories in both communities. During my visits to Tlahuitoltepec, I stayed in homes of people from the community. Most interviewees spoke Spanish. When some preferred to use their mother tongue (Zapotec in the Isthmus, and Mixe in Tlahuitoltepec) an interpreter facilitated the conversation. I used a snowball sampling technique where key informants from the public, private and civil society sectors provided further contacts. I spoke with a wide range of professionals, public servants, academics, activists, members of civil society more broadly, and residents that were familiar either with carbon markets or gender issues in Mexico.

The quotes are my translations of interviewees' opinions expressed in Spanish. I have respected the request for anonymity of my interviewees. The data was classified through thematic coding, in which I looked specifically for: (1) role of gender in carbon markets; (2) gender relations of carbon markets; and (3) resident participation in carbon markets. The following section compares the three themes above between the wind and forest carbon projects. Important gendered implications when it comes to participating and benefiting from carbon projects – including unequal access in participating in decision making and additional unwaged labor for women, were evident.

Results

Case Study 1: Forest Carbon Markets in Tlahuitoltepec.

The concept of payments for environmental services (PES) was introduced for the first time into Mexican law in July 2000 alongside the ratification of the General Wildlife Law. In 2007 the Mexican National Forestry Commission (Comisión Nacional Forestal or CONAFOR) set up ProÁrbol, the federal program governing and supporting the forestry sector and carbon projects.

ProÁrbol, set out to generate development and economic benefits through conservation, valuation and sustainable usage of varied ecosystems to enter the carbon market. In 2008 PRONATURA: a well-recognized Mexican environmental NGO, the Ministry of Environmental and Natural Resources (SEMARNAT) and CONAFOR created one of the first voluntary carbon programs called NEUTRALIZATE (Neutralize yourself). In an interview with a PRONATURA representative I was informed that the voluntary market would provide opportunities for businesses and individuals to neutralize their CO_2 emissions while paying communities to reforest or conserve their biodiversity. The program created instruments of control and helped with the initial contact between NGOs and private companies. The carbon reforestation project that I studied was handled by one of these NGOs: Environmental Services of Oaxaca (SAO in Spanish), a small NGO based in Oaxaca City. SAO handled carbon reforestation projects in eleven communities in the Sierra Norte and focused on forest restoration, agroforestry systems, natural regeneration, maintenance, reforestation and emissions reduction (de Oaxaca 2010). An SAO representative explained that the idea of obtaining payments from reforestation efforts emerged alongside the Clean Development Mechanism (CDM). The representative expressed that hopes were high then, as it was widely held that carbon markets were going to be their path to "salvation that they were going to end poverty and marginalization." However, the high costs and red tape in accessing the CDM made it impossible for a small NGO such as SAO to participate. The voluntary market offered SAO a viable alternative to enter carbon trading; however, finding companies willing to offset their carbon proved to be a challenge for a small unknown NGO. PRONATURA then facilitated interactions between the companies, and SAO and soon found interested companies in the voluntary carbon market looking to offset their carbon emissions. These companies were mostly from Mexico and Spain. SAO explained that companies participate in these carbon projects by paying ten dollars for every

ton of carbon sequestered. In return, they get a green seal that is testament to their environmental responsibility.

Even though this was supposed to be a carbon market, I didn't observe any carbon trading in place during the time of my research. PRONATURA said that the US$10 amount was chosen with the understanding that it had to be attractive to the buyer and to the community. I was informed that SAO gets one dollar, PRONATURA gets one dollar and the community gets eight dollars, money used to keep the project going. Women's role in this carbon project is highlighted in an SAO document that stresses that "women's participation in these projects is key since by nature, women will not destroy what they build…" (de Oaxaca 2010 p. 46). Even though the importance of women's participation is mentioned, it does so in a gendered way, serving as a testament to how development projects continue to take advantage of women's social reproductive roles without disrupting any oppressive roles in regards to land tenure, property and political participation.

The Sierra Norte of Oaxaca is one of the best-preserved biospheres in Mexico and thus a perfect target for conservation projects. It has three major indigenous groups: Zapotecs, Mixes and Chinantecs and is divided into three districts: Ixtlán, Villa Alta and Mixe. The project I investigated took place in Santa María Tlahuitoltepec, one of 17 municipalities in the Mixe district. It has a population of 3,452 (INEGI 2016) divided into *Rancherías* (settlements) and *Cabeceras* (municipal seats) and is mostly communal land. The forest projects were located on collectively-owned land and managed by an SAO trained local community technician. His responsibility was to train community members to reforest per PRONATURA's voluntary market standard. Tlahuitoltepec has always had an agrarian counsel, constituted by agrarian authorities who rotate every year and oversee all agrarian activities in the community, including reforestation. SAO's community technician went to them first

about the carbon project and all my visits to the reforested plots were made alongside the authorities. Through community interviews, community meetings and activities and engaged participant observation, it was clear that the agrarian authorities were the only ones aware of the carbon project. An interviewee informed me Tlahuitoltepec has a long-standing tradition, where community members reforest for free and residents are expected to plant 30 trees every year. Their tree planting tradition might have been masking community member's knowledge surrounding the carbon project since the only way that residents could participate was through their reforestation work. I was informed that an opportunity to reforest was announced to the entire community, and that it was open to both women and men.

There were two women in the room during my first meeting with the authorities and the technician, yet they did not say anything and were not asked to contribute. I asked whether women participated in decision-making processes surrounding the forest project and a male agrarian authority answered: "Yes they do; now we have equality." The women remained silent. I found out that these two women were "vocales" whose duties were like secretarial work. I was told that young men can also hold these positions and that there was the possibility of upward mobility for both men and women yet, I observed men occupying all the higher positions. These women accompanied us to the field visits and were mostly in charge of bringing food. I asked one of them if she also took care of her house and she said "Well, who else?" During a field visit to the reforested plots I asked the agrarian authorities about the general role of women in their community, and one of them replied:

> Because all my countrymen are peasants, both men and women need to work. They need money to feed their kids, to take care of their homes. That is the life we live here, work is hard here, it is shared between men and women, here there is no difference…Here we take women into account, we don't leave them on the sidelines.

This account stood in sharp contrast to the gender dynamics observed during my research; women's expertise was spatially segregated from forest management, and they were not invited to the decision-making table. However, they were primarily responsible for reforesting since the community technician held that around 70% of people working on reforestation were women. I asked him why so many women reforested, and he replied "…because it's easy… men handle the machetes; women deal with the branches." If this percentage is accurate, then it is a clear testament of how women are carrying most of the brunt of reforestation work and indeed subsidizing the carbon project. Since most women did not attend any of the meetings, I visited them at their homes to ask what they thought about the reforestation work. One woman said, "I like it a lot. The problem is, I can't cope with all the work. It's beneficial [and] I like to plant but I don't have time." Another woman replied, "I have time to do everything; while we are strong and healthy we must work. The truth is we lack resources, it is hard work, the money they give us is not enough, and the work is heavy and tough." Their statements indicate that they are aware that this work is exploitative but they choose to participate because it presents them with an opportunity for extra income, even though it adds many hours to their already full workday.

Case Study 2: Wind Carbon Markets in the Isthmus of Tehuantepec

Wind farms were one of the many market-based projects that the Salinas administration introduced in Mexico during the early 1990s, alongside the counter-reform of 1992. During this time, his administration passed a law permitting the foreign production of electricity because it would be cheaper than producing electricity at home. Thus, the foreign companies that produce electricity sell it to the Mexican Federal Electric Commission (CFE in Spanish), which then distributes it via the CFE-controlled grid (Mexico's only power grid).

Wind companies have been interested in Oaxaca's Isthmus of Tehuantepec because it is one of the windiest places in the world (Jaramillo and Borja 2004). The Isthmus region has two districts, Juchitán and Tehuantepec, and four major indigenous groups, the Zapotecs, Zoques, Mixes and the Mixtecos. The Isthmus is known for its contentious history of battling external forces, as well as government intervention. A CFE official admitted that the government and private companies were concerned about working in the Isthmus because "they were afraid of making mistakes…", which refers to making errors in communication when negotiating with communities that tend to be weary of outsiders, possibly resulting in offense. Nevertheless, the prospect of significant economic gains was enough for the Federal Government to urge the CFE to spearhead the first negotiations with a community in the Isthmus in 1997. The proposal was to use wind tower technology provided by GAMESA, a corporation from Spain. The economic prospect of the wind farms presented an attractive alternative for the community, which was moving away from crop production towards raising cattle. The pilot project, called La Venta I, was a great success and began attracting others interested wind farms. The La Venta wind project I researched is in an *ejido* in the Municipality of Juchitán de Zaragoza. It has a population of 2,161 (INEGI 2016). The wind park belongs to ACCIONA, a Spanish wind company developing infrastructure in Mexico for more than 30 years. Its first wind park, EURUS, was installed in July 2008, and began operation in 2009. EURUS auto-supplies its energy as well as produces electricity for CEMEX, the biggest cement company in Mexico and third largest in the world.

Residents from La Venta informed me that there was a great flurry of excitement when ACCIONA initially approached them since their economic prospects were meager. Once a self-sustaining community that lived off production of beans and corn, cattle, dairy products, and sugarcane, today only a lucky few live off cattle. Hopes were high then, an interviewee told me, since

ACCIONA promised to build a new community center, bring computers, and fix damaged sewage systems and streets. Most importantly, the company promised a new future. Residents from La Venta quickly disillusioned, as many of ACCIONA's promises fell short. The jobs generated by the company were nowhere near what the community had been led to believe. There were some temporary construction jobs available; however, with regards to long-term employment I was told that, "…the Spaniards bring their own people…there is a hierarchy, the engineers with better positions are from Spain; there are local engineers, but they have inferior positions." Residents and local government officials stressed that the wind company showed no interest in training the community in wind-farm technology.

Residents from La Venta told me that they could participate by leasing their *ejidos* and that the only condition that they could negotiate was how much money they would accept per hectare. Residents were made to sign contracts that would eventually give the government permission to take their lands. Others who signed didn't know how to read. Some residents I spoke to felt cheated because the payments they were receiving from the company were less than those made to others. And, even though electricity was being generated from their lands many were also upset that they did not receive any discounts on their electricity bills.

Interviewees also reported repression and violence directed at those who resisted the project or those who questioned its intentions. Most residents are unclear about the terms of participation and those that can participate depend on the ownership of *ejidos*, thus women are automatically excluded from participating since for the most part they do not own *ejidos*. One interviewee explained that because of a law called *sociedad conyugal* (marital partnership), which divides property between married couples, ACCIONA requires that women sign the lease as well. Another

interviewee told me that, "it's not because the [company] cares about the woman, they are never told why they must sign; they just tell the men: 'if you are married your wife also must sign.'"

To assess how women were affected by the wind project, despite their lack of direct participation, I asked the wives of *ejidatarios* what they knew about it. One responded: "I am not sure because I am not an *ejidataria* [what I do know is that] those who do not own land do not receive anything, and since they do not have land they don't say anything." Thus, women and the landless are left out of important decision-making. I asked a resident who was leasing his land to the project whether the money that people made from ACCIONA benefitted women. His response:

> There are a lot of drunks here. There are people with problems. The money that men get through these companies does create conflict. I have heard that many drink it, spend it elsewhere... The ones who think of their family don't go around wasting money. Others spend it on women, beer. In my mind, if I bring home two thousand pesos (around 130 US back then), I give them to my *señora* [wife]. There are others that think 'since I am macho I will give 700 hundred to my wife and keep the rest…' There are many men like this. Why would I steal from myself, I earned it, if my woman keeps it I tell her, woman give me money, I want to go to a wedding, and she gives me the money - how nice, we don't fight. I even go all the way to Acapulco.

In La Venta, the man is the primary income generator, for he has mobility and owns property, while the woman is dependent on her husband's income and stays home. La Venta is a place that can no longer provide viable livelihoods to many of its residents, which is why the prospect of ACCIONA's economic development was so attractive initially. Sadly, while the payments from the company cannot be directly correlated with drinking, interviewees confirmed that the new payments with no added job prospects might facilitate alcoholism.

Since the structure of the wind project excludes women from receiving payments from the company, ACCIONA, hoping to be recognized as a socially responsible company, set up two programs aimed at women. An ACCIONA representative informed me that one program was on

health education and the other was an embroidering program. The embroidering workshop offered by the wind company was positive for a woman from La Venta because in her words, "the workshop presented an opportunity to clear my mind, since I am locked up (in my home) it alters my nerves and I get depressed so when I heard about this workshop I went." This statement illustrates how there is not much for women to do in the community and their willingness to participate in anything that takes them out of their homes and mundane routines. María was one of the two health promoters in La Venta who was trained by ACCIONA to recruit women for free cervical exams that they were sponsoring. Maria was self-driven and curious, so when she heard that the company was offering health workshops she was excited to attend. It is important to note that she could do so not only because she was driven, but also because her husband allowed her to do so. He was also on good terms with the company. Maria was surprised that by the end of the training they told her that she had become one of the two community health promoters for La Venta. In her words:

> I thought it was it for me, as I told you; I just finished primary school, so I just was dedicated to my house. But after three days, they told us we were health promoters; our duties were to support the women of our town! I like supporting women. There are many diseases and many people do not have the necessary funds to go to a doctor…

She described her job as challenging since often she encountered women who had never gotten cervical exams and told her that "if this is how I will die, then I prefer not to know…" She stressed that their "… work is hard because chauvinism is rampant. They see it as something normal." Nevertheless, Maria expressed hope: "…I will keep fighting so more women go while the company is backing. Because they do help even though there are misunderstandings." I asked Maria about what others thought about these projects and she responded: "people see helping women as a good thing since these studies are expensive. So, my *compañera* and I will keep trying." Both women's

experiences resulted in feeling empowered, yet their participation follows the well-worn grooves of traditional gender roles, which take advantage of their social reproductive roles and are always unwaged. ACCIONA's initiatives are yet another example of gender-blind development projects that attempt to give power to women but instead fall into a 'gender trap' (Leach 1992), where women's social and occupational roles are seen as natural, expected, and incontestable – all prescribed by the society in which they live.

Conclusion

Using an FPE framework to examine the gendered impacts of carbon projects, I have shown how gendered rights and responsibilities enabled differential access and opportunities for two communities in Oaxaca to understand project benefits or losses. The Tlahuitoltepec forest project allowed residents to participate via their labor and was open to both men and women who had time and were physically able. Since women do 70 percent of the reforestation work, we must wonder whether the project takes advantage of their caregiver roles and utilizes their unpaid labor to subsidize them. In addition, the lack of female representation within the agrarian authorities and their exclusion from spaces where they had always participated, albeit informally, has marginalized women further, contributing to a progressive loss of knowledge surrounding the forest commons.

In La Venta, the condition that residents own *ejidos* to participate in the wind project, effectively excluded most women and those with insecure property rights. There was no attempt from the wind company to incorporate women into the main project, and the side projects aimed at women were only open to those whose husbands allowed them to go and were also on good terms

with the company. Thus, the programs that considered women were little more than ancillary addenda to the main objectives of "women's health" and "women's work."

This ad hoc incorporation of women created unwaged activities via the label of "women's work," subsidizing these projects by carrying the brunt of reforestation work in Tlahuitoltepec, or the brunt of caring for other women in La Venta. The projects did nothing to relieve women from household duties, leaving them to face double shifts, nor did they leverage them economically, so they are still dependent on their male counterparts. The carbon projects are enabling differential access and opportunities between men and women and between holders of individual land titles and those with insecure property rights.

Women participating in these projects were not passive victims as they actively chose to take on these extra responsibilities either because the carbon projects represented an extra income in the forest case or an opportunity to leave the house in the wind project's case; while fully aware that they would have increased responsibilities. Sadly, even though the carbon projects attempted to incorporate women, their under-recognition as resource managers and as core actors in climate mitigation and adaptation, limits carbon project benefits and results in a progressive loss of knowledge concerning forest health, biodiversity, and climate change.

Carbon projects seem to have ignored some hard-won lessons of gender and development work failing to acknowledge women's vital role in the maintenance and reproduction of their communities. They use women's social reproductive roles to subsidize development projects so the intensification of women's roles in production, reproduction and community management are central to the functioning of these projects rather than being unintended side effects. While global environmental conservation efforts are changing the structure of employment, opening

opportunities for female workers, they often do so by taking advantage of dominant social reproductive roles that effectively lock women out of any kind of meaningful participation in decisions. These efforts look for ways to cut labor costs, instead of economically leveraging women, increasing the number of women taking on unwaged jobs of caring, low wages and dead end jobs (MacGregor 2010; Nagar *et al.* 2002; Young 1998). When women's activities are narrowly defined within the domestic sphere, policies focusing on women are only geared towards that area and a broad range of other interests are left unexplored. Carbon initiatives thus fall into a 'gender trap' (Leach 1992) by implementing "women's projects" that ignore the power of gender as a political category and, thereby, squelching the potential for change.

Even though carbon markets present alternative economic opportunities for participating communities, by including women as a form of exclusion, they are intensifying gender inequalities that leave women at a disadvantage in comparison to men when it comes to accessing resources, property, paid jobs, and livelihood survival strategies. In fact, the carbon markets exacerbate the effects of a broader crisis currently occurring across the Mexican countryside; where in many communities, a combination of policy changes and environmental degradation have dramatically narrowed the range of livelihood possibilities. To check against gender projects becoming a box-ticking exercise, policies should address the structural constraints that limit women's access to control and ownership over resources and acknowledge that gender inequity stems from many different layers of oppression. A narrow focus on gender masks other forms of social differences and oppression such as class, race, sexuality and place which are all simultaneously important in responsibility, vulnerability, and governance of environment and climate change (Crenshaw 1989; Elmhirst 2011; Mollett and Faria 2013; Nightingale 2011).

Using gender as an analytical category, rather than understanding it as a biological given, allows us to focus on power relations within development schemes to understand under what processes women are left at a disadvantage in relation to men. Carbon projects in Southern Mexico should evaluate how they are transforming social systems of land, property, and political participation to avoid disadvantaging women. Otherwise, they run the risk of increasing gender inequality by only approaching and benefitting those who are visible and already better off. Women's silencing in development schemes will result in a progressive loss of gender-specific knowledge and expertise in land and resource management.

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Caption
Figure 1. Map of research sites